

AMENDMENTS TO THE CLAIMS

LISTING OF CLAIMS:

1-6. (Canceled)

7. (Currently amended) A method comprising:

a) obtaining nucleotides covalently linked to gold or silver, or gold or silver nanoparticle(s), wherein the nucleotide and nanoparticles are linked via a terminal reactive cross-linking group, selected from the group consisting of epoxide groups, azido groups, triazine groups, arylazido groups and diazo groups;

b) synthesizing one or more nucleic acid molecules comprising the gold or silver, or gold or silver nanoparticles;

c) immobilizing the nucleic acid molecule of step (b) on a solid substrate;

d) sequentially releasing nucleotides from one end of one or more nucleic acid molecules via an exonuclease;

e) identifying the released unlabeled nucleotides in a buffer comprising an alkali-metal halide salt by Raman spectroscopy; and

f) determining the sequence of the nucleic acid molecule.

8. (Original) The method of claim 7, wherein single molecules of nucleotides are identified by Raman spectroscopy.

9. (Original) The method of claim 8, wherein a single nucleic acid molecule is sequenced.

10. (Previously presented) The method of claim 7, wherein multiple nucleic acid molecules of the same sequence or multiple nucleic acid molecules of different sequences are sequenced simultaneously.

11. (Previously presented) The method of claim 7, wherein the alkali-metal halide salt is selected from the group consisting of MgCl, CaCl, NaF, KBr, LiI, and LiCl.

12. (Previously presented) The method of claim 11, wherein the alkali-metal halide salt is

LiCl.

13. (Previously presented) The method of claim 7, wherein the linker compound is 3-glycidoxypropyltrimethoxysilane(GOP).

14-16. (Canceled).

17. (Previously presented) The method of claim 7, wherein the released nucleotides are identified by surface enhanced Raman spectroscopy (SERS), surface enhanced resonance Raman spectroscopy (SERRS) and/or coherent anti-Stokes Raman spectroscopy (CARS).

18. (Previously presented) The method of claim 7, further comprising separating the nucleotides from the one or more nucleic acid molecules by transferring the released nucleotides through a microfluidic channel.

19. (Previously presented) The method of claim 18, wherein microfluidic channel is a metal coated channel.

20. (Previously presented) The method of claim 19, wherein the metal is silver, gold, platinum, copper, or aluminum.

21. (Previously presented) The method of claim 20, wherein the nanoparticle and microfluidic channel comprise silver.

22-30. (Canceled)